

CLAIMS

What is claimed is:

1. An imbibed fiber comprising: *how capable it is from imbib.*
 (a) a fiber of an elastomeric polymer capable of imbibing a chemotherapeutic agent; and
 (b) a therapeutically effective amount of the chemotherapeutic agent imbibed in the fiber.

2. The ~~imbibed~~ fiber of claim 1 in which the fiber has a core of a segmented polymer; the segmented polymer has soft segments and hard segments; the hard segments are selected from the group consisting of urethane, amide, imide, and mixtures thereof; the soft segments are selected from the group consisting of polyester, polyether, and mixtures thereof; and the hard segments are linked to the soft segments by covalent bonds.

3. The ~~imbibed~~ fiber of claim 2 in which the chemotherapeutic agent is a substance useful in dental hygiene.

4. The ~~imbibed~~ fiber of claim 1 in which the fiber has: a denier value in the range of 40 to 4,000; a tensile strength higher than 0.5 grams per denier; and a break elongation of at least 400%; the fiber requiring a stress to elongate selected from the group consisting of 0.03 to 0.4 grams per denier to develop an elongation of 200% and 0.07 to 0.6 grams per denier to develop an elongation of 300%.

5. The ~~imbibed~~ fiber of claim 5 in which the fiber has a core of a segmented polymer; the segmented polymer has soft segments and hard segments; the hard segments are selected

from the group consisting of urethane, amide, imide, and mixtures thereof; and the hard segments are linked to the soft segments by covalent bonds.

5 6. The ~~imbibed~~ fiber of claim 5 in which the chemotherapeutic agent is a substance useful in dental hygiene.

7. The ~~imbibed~~ fiber of claim 5 in which the chemotherapeutic agent is selected from the group consisting of sodium fluoride and stannous fluoride.

8. The ~~imbibed~~ fiber of claim 5 in which the chemotherapeutic agent is a penicillin. 5/4/92

9. The ~~imbibed~~ fiber of claim 5 in which the chemotherapeutic agent is chlorhexidine. 5/4/03s

10. An assembly comprising a box and an imbibed dental floss at least partially enclosed in said box, the imbibed dental floss comprising:

- (a) a fiber of an elastomeric polymer capable of imbibing a chemotherapeutic agent; and
- (b) a therapeutically effective amount of the chemotherapeutic agent imbibed in the fiber.

11. The assembly of claim 10 in which the fiber has a core of a segmented polymer; the segmented polymer has soft segments and hard segments; the hard segments are selected from the group consisting of urethane, amide, imide, and mixtures thereof; the soft segments are selected from the group consisting of polyester, polyether, and mixtures

thereof; and the hard segments are linked to the soft segments by covalent bonds.

12. The assembly of claim 11 in which the fiber has:
5 a denier value in the range of 40 to 4,000;
a tensile strength higher than 0.5 grams per denier; and
a break elongation of at least 400%;
the fiber requiring a stress to elongate selected from the
group consisting of 0.03 to 0.4 grams per denier to develop an
10 elongation of 200% and 0.07 to 0.6 grams per denier to develop
an elongation of 300%.

13. The assembly of claim 12 in which the fiber
comprises at least about 2,000 ppm of water soluble fluoride.

14. A fluoride-containing fiber prepared by adding a
fiber to an aqueous solution or dispersion of a fluoride salt
for a time sufficient for the fiber to imbibe fluoride;

in which:

20 the pH of the aqueous solution or dispersion is greater
than about 1; and

the fluoride-containing fiber comprises at least about
1,000 ppm of water soluble fluoride.

25 15. The fluoride-containing fiber of claim 14 in which
the fiber comprises at least about 2,000 ppm of water soluble
fluoride.

30 16. The fluoride-containing fiber of claim 14 in which
the time sufficient for the fiber to imbibe fluoride is less
than twenty four hours.

17. The fluoride-containing fiber of claim 15 in which the fiber has:

a denier value in the range of 40 to 4,000;

a tensile strength higher than 0.5 grams per denier; and

a break elongation of at least 400%;

the fiber requiring a stress to elongate selected from the group consisting of 0.03 to 0.4 grams per denier to develop an elongation of 200% and 0.07 to 0.6 grams per denier to develop an elongation of 300%.

18. The fluoride-containing fiber of claim 17 in which the fiber comprises at least about 2,000 ppm of water soluble fluoride.

19. A method for preparing a fluoride-containing fiber, the method comprising adding a fiber to an aqueous solution or dispersion of a fluoride salt for a time sufficient for the fiber to imbibe fluoride;

in which:

the pH of the aqueous solution or dispersion is greater than about 1; and

the fluoride-containing fiber comprises at least about 1,000 ppm of water soluble fluoride.

20. A method for preparing an imbibed fiber of an elastomeric polymer capable of imbibing a chemotherapeutic agent comprising a therapeutically effective amount of the chemotherapeutic agent, the method comprising adding a fiber to an aqueous solution or dispersion of a chemotherapeutic agent for a time sufficient for the fiber to imbibe the therapeutically effective amount of the chemotherapeutic agent;

in which:

the fiber has a denier value in the range of 40 to 4,000, a tensile strength higher than 0.5 grams per denier, and a break elongation of at least 400%;

5 the fiber requires a stress to elongate selected from the group consisting of 0.03 to 0.4 grams per denier to develop an elongation of 200% and 0.07 to 0.6 grams per denier to develop an elongation of 300%.

10 21. The method of claim 20 in which the aqueous solvent is water.

15 22. The method of claim 20 in which the fiber has a core of a segmented polymer; the segmented polymer has soft segments and hard segments; the hard segments are selected from the group consisting of urethane, amide, imide, and mixtures thereof; the soft segments are selected from the group consisting of polyester, polyether, and mixtures thereof; and the hard segments are linked to the soft segments by covalent bonds.

20 *Sub A3* 23. An imbibed polymer comprising:
(a) a polymer capable of imbibing penicillin; and
(b) a therapeutically effective amount penicillin imbibed in the polymer.

25 24. The imbibed polymer of claim 23 in which the polymer is nylon.

Sub A4